

Patent Claims

1. A switchgear assembly module (1) for controlling  
5 and monitoring at least one electrical load in the  
outgoer of a low-voltage switchgear assembly, having at  
least one communication interface for connection to a  
bus system, having a programmable controller and having  
configurable protective functions,  
10 characterized in that  
- the switchgear assembly module (1) is formed  
from interchangeable components and has at least one  
central unit (2) as well as at least one bus connection  
unit (6) with a communication interface,  
15 - additional connection slots are provided for  
holding at least one power unit (4) and at least one  
input/output unit (7), and in that  
- an internal bus is provided for communication  
from the central unit (2) with the other components  
20 which are located in the switchgear assembly module  
(1).
2. The switchgear assembly module (1) as claimed in  
claim 1, characterized in that the central unit (2) has  
25 a programmable control and configurable protective  
functions, and in that an external interface (2a) is  
provided for connection of a control/configuration unit  
(5) or of a programmer.
- 30 3. The switchgear assembly module (1) as claimed in  
claim 2, characterized in that the external interface  
(2a) is an electrical, optical or wire-free interface.
- 35 4. The switchgear assembly module (1) as claimed in  
one of the preceding claims, characterized in that an  
input/output unit (7) has binary inputs, binary  
outputs, analogue inputs, analogue outputs or a  
combination thereof.

5. The switchgear assembly module (1) as claimed in one of the preceding claims, characterized in that the at least one bus connection unit (6) together with one or more further bus connection units (6) that are provided and/or one or more input/output units (7) that are provided forms an interface unit (3).

6. The switchgear assembly module (1) as claimed in one of the preceding claims, characterized in that a power unit (4) has an outgoer section (4a), a feed section (4b), a measurement device (4c) and a processing unit (4d).

7. The switchgear assembly module (1) as claimed in claim 6, characterized in that a power unit (4) additionally has a main switching device and/or a switch disconnector.

8. The switchgear assembly module (1) as claimed in claim 6, characterized in that the measurement device (4c) has one or more sensors for current measurement, and/or for voltage measurement and/or for temperature measurement.

9. The switchgear assembly module (1) as claimed in claim 8, characterized in that the measurement device (4c) has further sensors for measurement of further environmental variables.

10. The switchgear assembly module (1) as claimed in one of claims 7, 8 or 9, characterized in that the processing unit (4d) is an electronic circuit and has inputs for reading the values measured by the measurement device (4c), and/or inputs for reading a position message from the main switching device and/or from the switch disconnector and/or other status messages and/or outputs for driving the main switching

device and/or the switch disconnector and/or other appliances.

11. The switchgear assembly module (1) as claimed in  
5 claim 10, characterized in that the processing unit  
(4d) has means in order to use the currents and  
voltages read by the measurement device (4c) to  
calculate the real power supplied to the load, the  
10 wattless component supplied to the load, the  
volt-amperes supplied to the load, the power factor and  
the mains frequency.

12. The switchgear assembly module (1) as claimed in  
one of claims 2 or 3, characterized in that the  
15 control/configuration unit (5) has a first interface  
(5b) for connection to the external interface (2a) of  
the central unit (2), as well as visual indications  
and/or switches and/or keys.

20 13. The switchgear assembly module (1) as claimed in  
claim 12, characterized in that the first interface  
(5b) is an electrical, optical or wire-free interface.

14. The switchgear assembly module (1) as claimed in  
25 one of claims 12 or 13, characterized in that the  
control/configuration unit (5) has a second interface  
(5a) for connection of a programmer.

15. The switchgear assembly module (1) as claimed in  
30 claim 14, characterized in that the second interface  
(5a) is an electrical, optical or wire-free interface.

16. The switchgear assembly module (1) as claimed in  
one of claims 2, 3, 14 or 15, characterized in that a  
35 standard PC with an appropriate programming interface,  
or a standard PDA with an appropriate programming  
interface is provided as the programmer.

17. The switchgear assembly module (1) as claimed in one of claims 2, 3, 14, 15 or 16, characterized in that the central unit (2) has an integrated web server, which allows programming of the programmable controller and/or configuration of the protective functions, and/or control of the switchgear assembly module with the aid of a standard web browser installed in the programmer.